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LOWER PALAEOLITHIC CULTURES[1]

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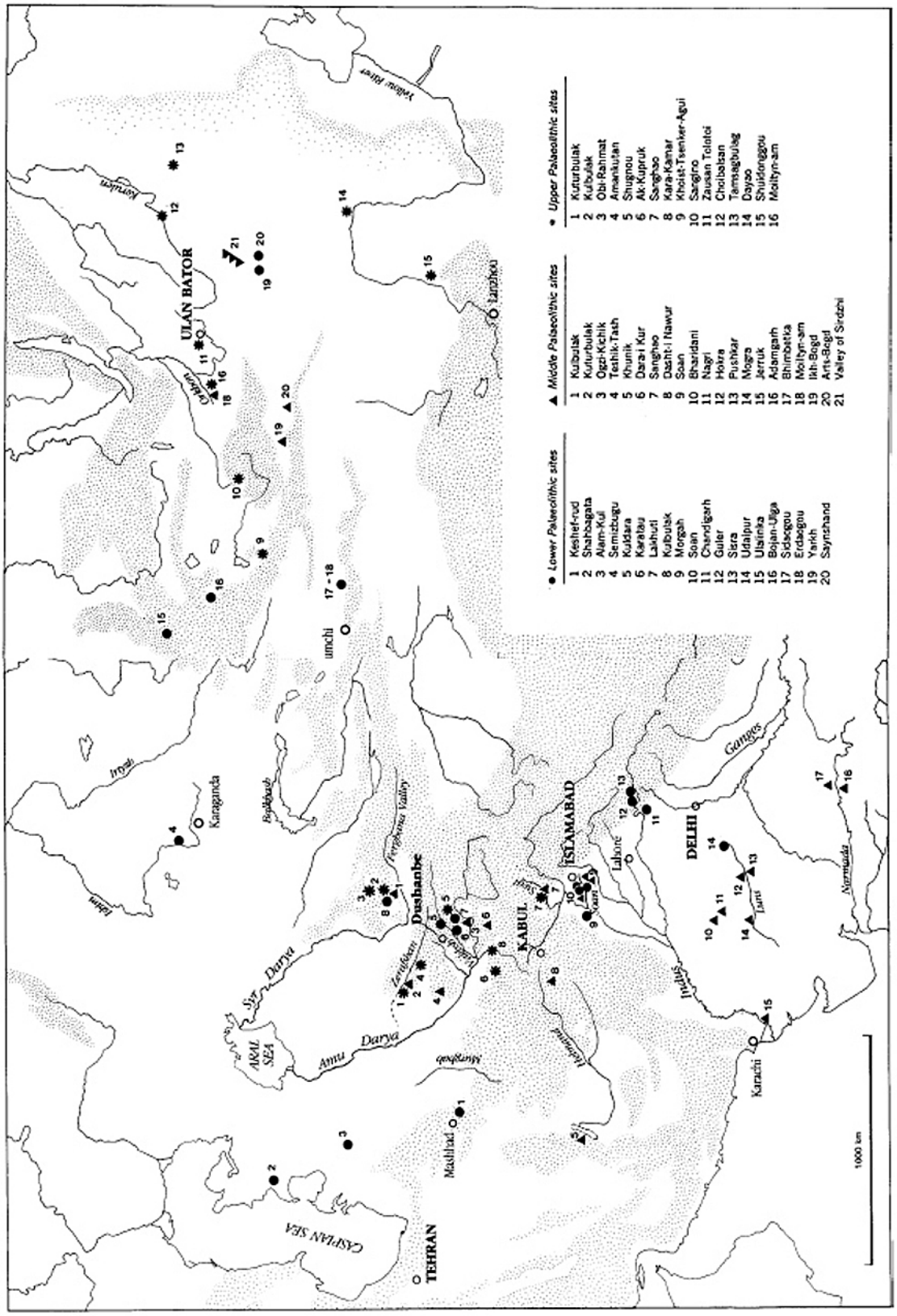
FOR the study of the earliest stages of human history in Central Asia, the most important researches have been carried out in Pakistan and northwestern India, [2]Mongolia[3] and south-eastern Soviet Central Asia.[4] Unfortunately, only at isolated spots in the first of these regions, and at a limited number of places in the loess districts of the Tajik-Afghan depression, is archaeological material presented in clear stratigraphical order. Elsewhere we have only typologically archaic artefacts which are ascribed to the Lower Palaeolithic, hypothetically on the basis of general considerations or of geomorphological information.

Of all the mountain regions of Central Asia, the best studied is southern Tajikistan. Here the complex Late Cenozoic deposits (conglomerate sands, silts and gravels) are covered by a layer of loess up to 200 m thick which in the foothill zone regulary alternates with ancient palaeosols. Most scholars think that the periods of loess formation coincided with the onset of the surface glacial stages in more northerly latitudes and the development of mountain glacial stages in Central Asia, though the glaciers there did not descend below 2,000 m above sea-level. Conversely soils, or rather soil assemblages consisting of several superimposed layers of soils at different stages of development, correspond to the warmer and more humid climatic conditions of the inter-glacials.

The loess sediment lies like a mantle over low watersheds less than 1,500–2,000 m above sea-level and the flanks of the foothills or *adyrs*, and fills out the surface of the intramontane valleys, thereby embracing every topographical feature.

The totality of palaeogeographical information indicates that during the Pleistocene the landscape here was high-grass savannah in the climatic optimums of the interglacials

[1] See Map 3.
[2] De Terra and Paterson, 1939.
[3] Okladnikov, 1978.
[4] Ranov and Davis, 1979, pp. 252–6



Map 3 Palaeolithic sites of Central Asia.

(temperate coniferious and broadleaf woods combined with steppe assemblages) and sparse xerophytic woods with large areas of arid steppes in the periods of loess formation.

It must be emphasized that the bulk of the archaeological finds relates to the middle strata of palaeosols or soil assemblages, or in other words, to the climatic optima. This suggests that there were periods, each of which is thought to have lasted from 6,000 to 10,000 years, that were most favourable to primitive man. During the loess-formation periods, which coincided with a reduction in precipitation and the drying up of springs on the watersheds, people either left the region altogether or went lower down into the valleys; at the same time, the number of hunting and gathering groups diminished markedly. It should be borne in mind that when Lower Palaeolithic man lived there the terrain was gentler and flatter than it is now, since the intensive tectonic lifting and the carving of the rivers that reshaped it occurred during the Middle and to some extent the Late Pleistocene.

A total of forty-eight palaeosols have been identified in the Tajik-Afghan depression. Of these soils 1–9 have been ascribed, by stratigraphy, geological methods, palaeogeography, thermoluminescent dating and palaeomagnetic survey, to the Pleistocene; soils 10–19 to the Eneopleistocene, and the remainder to the Late Pleistocene.

Up to the end of 1986, three Lower Palaeolithic sites, yielding significant archaeological material, had been excavated in southern Tajikistan, and isolated artefacts had been found in more than twenty different places.

Over 60 per cent of the finds concerned palaeosols 5 and 6, which is where the two biggest sites were located. These discoveries suggest that the period from 250,000 to 130,000 years ago was the most favourable for primitive man in this region.

Excavations in recent years have produced evidence that fossil man appeared in southern Central Asia at a much earlier date. An isolated artefact was found in palaeosol 9, the date of which corresponds to the European Cromerian (some 50,000 years ago according to thermo luminescent dating). The relatively small site of Kuldara (Khavaling region of southern Tajikistan) produced forty artefacts scattered in palaeosols 11 and 12, which have been dated by the palaeomagnetic method to 75,000–80,000 years ago.

The industry of Kuldara is characterized by very small stone artefacts (generally measuring less than 5 cm), along which it is possible to identify cores and tiny scraping tools, including side scrapers with a fine serrated finish. Although small in scale, the industry of Kuldara preserves certain features of the stone-splitting technique characteristic of the pebble culture.

Relatively large-scale excavations, involving the removal of a sterile layer of loess 15 m thick, have been carried out at two sites uncovering 500 m^2 at Karatau I and 216 m^2 at Lakhuti I (Figs. 1 and 2). At the first site, about 1,000 artefacts and stone manuports were

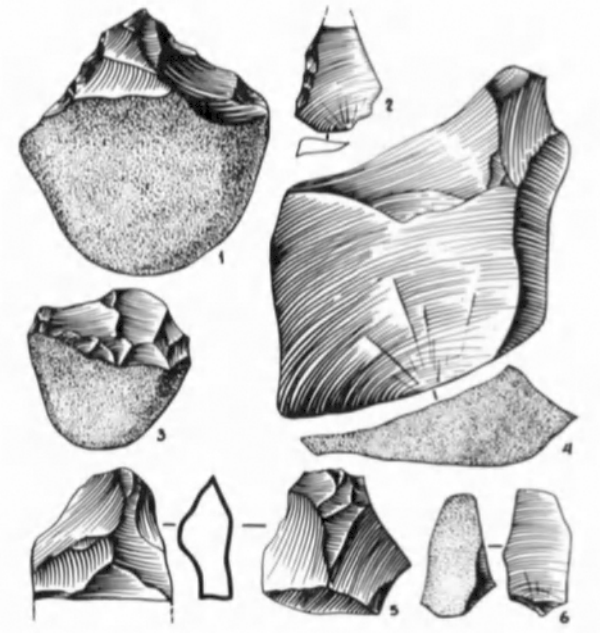


Fig. 1. Stone tools from the site of Karatau I (1–3: choppers; 2: scraper; 4: flake; 5: bifacial tool; 6: waste).

found in palaeosol 6 (200,000 years ago) at a depth of 64 m. Similarly 1,100 pieces were discovered at the second site, in palaeosol 5 (300,000 years ago) at a depth of 55 m.[5]

These objects give an excellent picture of the Karatau pebble culture, which represents the Lower Palaeolithic in the mountains of Soviet Central Asia.

In either case the stone artefacts, which were found in varying concentrations in both vertical and horizontal sections, [6] were scattered in the palaeosol stratum that corresponds most exactly to the climatic optimum, the usual thickness of the vividly coloured soil being 2.7 to 2.3 m. No traces were found of a genuine cultural stratum combining living quarters, fireplaces, culinary remains, etc., and the animal remains were almost negligible. To all appearances, these were temporary hunting camps rather than long-term settlements.

The stone tools of the Karatau culture have a number of specific features stemming both from an enduring technical tradition and from the poor quality of the raw material, most of which was brittle, unworkable magmatic or sedimentary rock that ancient man gathered as pebbles from the river beds. Their chief peculiarity is that they include none of the bifacially-worked axes characteristic of the Lower Palaeolithic in other regions and, indeed, no bifacial tools whatsoever. Only in the Riss-Würm period (Lakhuti I) do more or less distinct rectangular and disc-shaped cores appear; flake-tools are very few in number,

[5] Ranov, 1980.
[6] Ibid., pp. 202–7

and most of the flakes are irregular in shape. The 'citrus' technique and *quartier d'orange* artefacts, conversely, are comparatively well represented. Most of the flakes and debris result from the dressing of the pebble's edge or from its cutting: specially prepared cores were not required for this purpose. The tools include choppers of various shapes, rare chopping tools, irregularly-edged scrapers, small scrapers of dissimilar shapes, roughly-worked small points and serrated and concave tools. By and large the tools are very irregular and individual with no fixed patterns (Figs. 1 and 2).

The Karatau culture is thus a distinctive phenomenon in the Lower Palaeolithic of Central Asia, resembling in its fundamentals the Lower Palaeolithic industry of the Soan and Beas valleys and the loess regions of China, but differing considerably in many technical and typological aspects from the traditional Acheulean culture. A similar technical tradition that may be described as a 'pebble culture' existed in the Lower and Middle Pleistocene over most of the mountainous parts of Soviet Central Asia.

There have been individual finds of Acheulean-type bifaces in Middle Asia – on the Krasnovodsk peninsula and in the Ferghana valley – but their geological dating is not definite. An Acheulean culture of still undetermined typology, initially estimated to be 700,000 to 500,000 years old, has been found in good stratigraphic order near the town of Angren, at the site of Kulbulak where there are several strata.

In the steppes of Kazakhstan and the desert regions of Soviet Central Asia, a large quantity of bifacial tools have been found among which the traditional Acheulean hand axes may be distinguished. The more patinated and rounded examples (all the collections consist of excavated items) found near the Semiz-bugu hills, at the village of Vishnevka near Tselinograd, on the Mangyshlak peninsula and elsewhere, may belong to the Lower Palaeolithic and correspond to the Riss-Würm or an earlier geological period. No final verdict can be given until sites are found with clear stratigraphic horizons and dates obtained through multidisciplinary methods. In view of a number of circumstances pertaining to the accumulation of sediment in these regions, no great hopes can be placed on this.

The best-known Palaeolithic culture of Central Asia is generally accepted as that of the Soan valley. Identified, following the work of H. de Terra and T. T. Paterson on the Potwar plateau in Pakistan, this culture has become a standard model and provided the impetus for the development of the still-topical theory of the 'Asian Palaeolithic'.[7]

The age of the culture was determined on the basis of the supposed geomorphological location of the Palaeolithic finds on the Punjab river terraces, which vary in height. The archaeological data are based on Palaeolithic industry complexes which differ markedly among themselves. Work subsequent to that of H. de Terra and T. T. Paterson has until

[7] Movius, 1944.

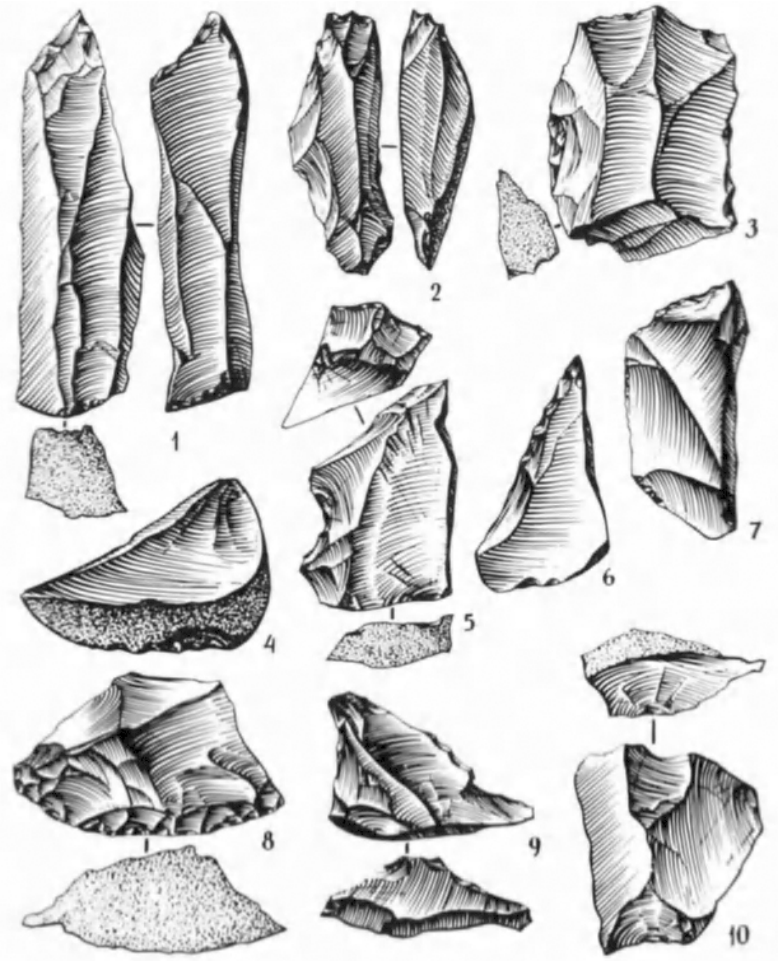


Fig. 2. Stone tools from the site of Lakhuti I, south Tajikistan (1, 2, 9: carinated; 3, 4, 6, 7, 8: scrapers; 5: notched; 8: Mousterian-type scraper; 9, 10: flakes).

recently made only partial amendments to this model, according to which the earliest of pre- Soan industry, which is represented only by a few crudely fashioned implements in the boulder conglomerates of the watershed plateaux, is contemporary with the second or Mindel Glacial Stage of the Himalayas. This industry is known only in Pakistan (Makhad Adiala et al.); terrace Tl – the uppermost of the river terraces in the Himalayan foothill region, corresponding to the Mindel-Riss Interglacial Stage– contains finds of the early or Lower Palaeolothic Soan culture (Shadipur, Jalwal, etc.) (Fig. 3).

In both western and eastern Punjab, the bulk of the early Soan tools were taken from the top or flanks of these terraces. In rare cases artefacts were excavated from pebble beds or the loess-type soils that cover them, but no proper geological study of these finds has yet been carried out. To this, one might add a number of finds made by H. D. Sankalia in moraine deposits near Pahalgam in Kashmir, which that author considers the oldest on the southern Asian subcontinent and ascribes to the first or Günz-Mindel Interglacial

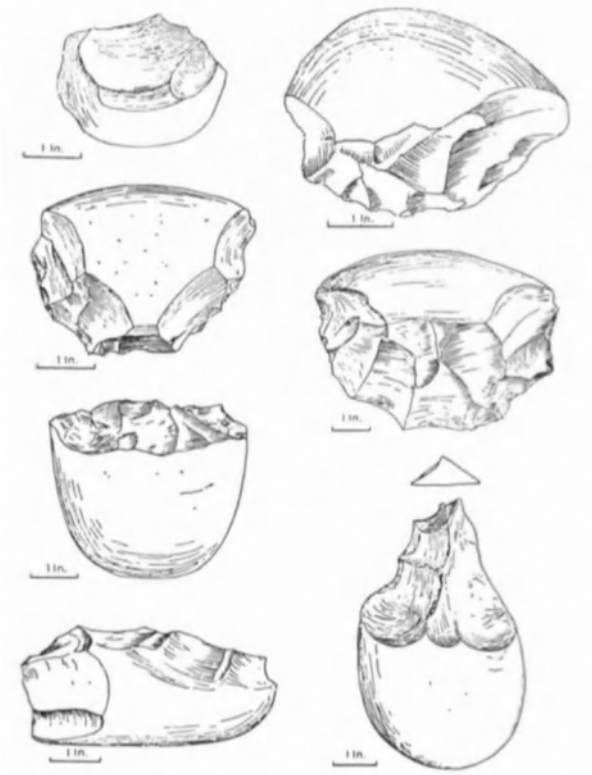


FIG. 3. Early Soan pebble tools (Potwar Plateau, Pakistan).

Stage – in other words to the Lower Pleistocene – while the pre-Soan and early Soan industries correspond to the Middle Pleistocene in Himalayan chronology.[8] Implemens ascribed to the early Soan have been found at several places in the eastern Punjab, examples being the upper terraces at Guler and Nalagarh in the state of Himachal Pradesh.

In typological terms, the pre- Soan is represented by large, heavily rounded quartzite flakes with a broad, flat, unfaceted struck crest set at an angle of 100 or 125 degrees to the flaked surface, and by a few unifacial pebble-core tools. The early Soan is more complex; it is subdivided, on the basis of the tools' surfaces and the degree of weathering, into two and sometimes three groups which none the less contain completely identical types of artefact. Many specialists have pointed out that the chief peculiarity of the Soan industry was, from the early phase of its development, the use of rounded pebbles for tool-making, with the additional feature that most tools were made in such a way that part of the pebble was left intact.[9] As in the Karatau culture, there was a very long-lasting tradition of pebble tools that changed little in type until the very last stages of the Palaeolithic.

[8] Sankalia, 1974.
[9] Paterson and Drummound, 1962.

Tools of the Soan industry were made of flat-based or rounded pebbles. In the first case, the working edge was shaped with a series of large chips running up from the base at an angle varying from 45 to 60 degrees; in the second, both sides were worked. Additionally, the edges were retouched to some extent. That was how the two chief tools of the Soan industry, the chopper and the chopping tool, were produced: in quantitative terms, the former unquestionably predominate. The working edge could run around the entire perimeter or only part of it. Other categories – cores, flake-tools and flakes – are very summarily described. Some cores were reminiscent of the Clactonian and others of the Levalloisian types. The commonest category is relatively large flakes with an angle of spallation of 95 to 130 degrees and straight-struck crests. Only occasionally is the spine cut correctly, retouching is rarely recorded, and there is an absolute lack of well-defined flake-tools such as points or scrapers. On the whole, early Soan artefacts demonstrate a distinctive pebble technology in the traditional typological shapes.

In recent years, however, there has been mounting evidence that the old hypothesis, according to which the Soan culture developed independently and was set against the hand-axe industry of the Madrasian culture that was common in non-Himalayan regions, requires further proof. While pebble tools undoubtedly dominated the early discoveries, with only occasional finds of hand-axes, tools such as hand-axes, bifaces and cleavers are now being found in such places as Morgah in Pakistan, the Kangra river valley and near the town of Chandigarh in the state of Himachal Pradesh (Fig. 4).

Since 1980 an interdisciplinary team, consisting of the British Archaeological Mission to Pakistan working in collaboration with the Pakistan Government Department of Archaeology and the Geological Survey of Pakistan, has come to a new understanding of the geology of the Potwar plateau.[10] This provides a basis for understanding the context and chronology of the Palaeolithic cultures represented there. The impact of peninsular India on the main land mass of Asia which has been taking place for the last 20 million years as part of the worldwide process of plate tectonics has been steadily forcing up the Himalayas, Tibetan plateau and other major mountain formations. This has led to massive erosion, rivers and streams carrying gravel, silt and other material out of the mountains. This material has been laid down on the plain below the mountains, forming what are known as the Siwalik deposits. Laid down horizontally the Siwaliks were in turn progressively folded, particularly during the period between 1.6 and 0.4 million years ago. During this time man and his hominid ancestors were already present in the region, making stone artefacts. The artefacts were incorporated into the Siwalik material, and when the Siwalik folds were planed off and dissected by further erosion, artefact-bearing layers were exposed.

[10] Dennell, 1984; Rendell, 1984; Rendell and Dennell, 1985; Stiles, 1978; Allchin, 1986.

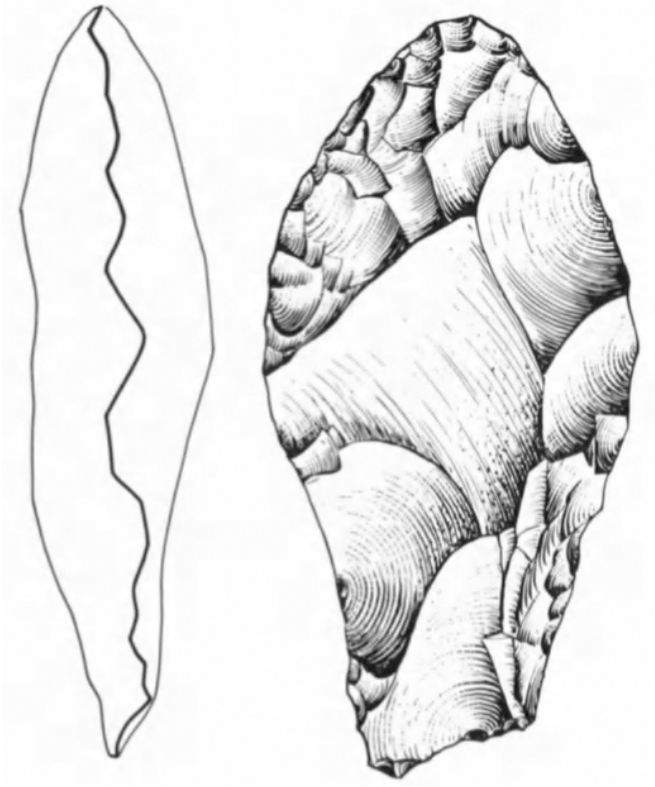


FIG. 4. Hand-axe from the site of Morgah (Pakistan).

A programme of palaeomagnetic and fission-track dating of the Siwalik strata recently completed by a joint Pakistani-American team has provided a framework of dates to which the archaeological material has been related. Further programmes of thermoluminescent and palaeomagnetic dating undertaken by the British Archaeological Mission to Pakistan have extended and refined this. Hand-axes have been found in strata dated to 700,000 years ago. Scrapers and small chopping tools are associated with a sandstone stratum rich in fossil fauna dated to between 1.2 and 1.4 million years ago. A group of artefacts including a core and a number of flakes were found in a context for which a date of 2 million years has been recently obtained.

At the time of writing, work is still in progress on the Potwar plateau and in the adjoining Pabbi hills. The area is clearly one of great immediate and potential importance for the study of early man and his hominid ancestors. It is particularly interesting because of the scope it provides for the study of past environments, which is currently taking place, and will make it possible to understand the context in which the makers of the stone tools lived. Throughout, the Potwar industries are based on quartzite pebbles and cobbles, the only good quality raw material readily available. Choppers and chopping tools are frequently found alongside other artefacts. The nature of the raw material has placed certain controls

upon the methods of stone working practised and the tool types produced. There can be little doubt that the use of cobbles and pebbles has favoured the production of simple choppers and chopping tools.

In the 1970s there were simultaneous discoveries of comparatively large collections of pebble tools, primarily choppers and allied tools made off takes and various chippings, at several places in Iran.

In Iranian Baluchistan, G. Hume discovered, in the valleys of the Ladiz and Mashkid rivers, a new industry comprising seven sites which he ascribed, on the basis of geomorphology, roughly to the interval between the Riss and Early Würm glacial maxima. Its raw materials were in part pebbles and in part fragments of quartzite, flinty shale and jasper. The artefacts were collected from the surface of river terraces. This is a well-defined complex of pebble technology, chiefly choppers, the bulk of which may be compared with the late Soan and the oldest part with Acheulean.[11]

Near Mashhad in the north-eastern corner of Iran, A. Arari and C. Thibault collected from the valley of the Keshef-rud a noteworthy series of pebble tools, choppers, serrated and concave flake-tools, bill-shaped instruments and Clactonian flakes. Some of these were collected on the slopes in pebble spillages fron Middle and Upper Pleistocene formations, and some on the pebbly surfaces of the highest terraces, which relate geomorphologically to the Lower Pleisto- cene. This definitely entitles the discoverers to consider them to be the earliest in Iran and to estimate their age at 800,000 years.[12]

A small quantity of choppers, cores and the accompanying flakes were found between Tabriz and Mianeh in the region of the Sahand hills. Found on the surface, these objects were most probably remains of small hunting camps in the Lower Palaeolithic.[13]

Hence various parts of Iran reveal the traces of fossil man using pebble tools and other similar to the early and late Soan complexes. But none of these finds are stratified, and in these circumstances their geological date cannot be considered definitive. They therefore remain of merely general historic and cultural interest, and their significance cannot yet be viewed as incontrovertible.

There is very slight evidence of another culture, the Acheulean, most probably of the West Asian type, relating to the production of bifacial tools. Thus an Acheulean-type axe was found by R. Braidwood on the surface of a mount near Kermanshah, and a similar artefact is known from the region of Tabriz where it was found on a low terrace and had clearly been disturbed.

[11] Hume, 1976.
[12] Arari and Thibault, n.d.
[13] Saek-Kooros, 1976.

The great paucity of Lower Palaeolithic finds in Iran is due, in our view, to two main factors: (a) the country has been little studied by archaeologists and (b) the topography was restructured in the Upper Pleistocene, as were many mountain parts of Central Asia.

Where Afghanistan is concerned, the only place where crude flakes, cleavers, choppers and chopping tools have been collected is on the former banks of Lake Dasht-i Nawur in Ghazni province. But neither their typological character nor their geological environment inspire complete confidence that the collection really belongs to the Lower Palaeolithic.[14]

The interior of Central Asia is a large and geographically complex land of predominantly desert and mountain terrain. Only in the north is there an upper layer of loess-type soils, chiefly of recent, Upper Pleistocene origin. In the north tracts of taiga may be encountered, and in the south the scorching badlands and sand-dunes of the Gobi Desert.

Despite the fact that the search for Palaeolothic cultures in Mongolia was started by A. P. Okladnikov in 1949, and in southern Siberia even earlier, the region's Lower Palaeolithic sites have been very little studied. With one exception, all the finds ascribed with varying degrees of reliability to the Lower Palaeolithic were taken from the surface and consequently, like H. de Terra and T. Paterson's Soan collections, they have no stratigraphic substantiation: their antiquity was determined from technical and typological features and can be accepted only with reservation.

The site of Ulalinka, within the town of Gornoaltaisk in the northern Altai, gives rise to considerable controversy among specialists. Discovered in 1961, it was excavated over several seasons by A. P. Okladnikov. Beneath a four-metre layer of alluvial loam lies a stratum of multicoloured clays resting on boulder deposits. In the lower part of the clay, which geologists ascribe to the Kochorka Eneopleistocene suite, a series of hand-worked pebbles is to be found in a seam of yellow-ochre-coloured clay, containing quartzite boulders and pebbles. Palaeomagnetic analysis suggests that the yellow-ochre is in the Matayama zone of negative magnetization. The thermoluminescent date of the layer that contains the tools is 1.48 million years.[15]

The archaeological material is restricted to quartzite tools scattered among the pebbles in the clay. Okladnikov identifies several groups: crude pebble 'proto-axes', 'tools with an extended nose', crudely made choppers and crude scrapers. Particular attention was paid to laterally split quartzite pebbles with dressed edges and tips. Although these artefacts are comparable in period with the Olduvan industry, their general appearance does not allow direct analogies to be drawn with that site or its typological series. The reason is that Ulalinka lacks both stable designs and, most importantly, the usual signs of deliberate

[14] Davis, 1978.
[15] Ragozin, 1982, pp. 119–21.

working – the struck crest, surface cutting, precise spalling facets and so on. Okladnikov overcomes this difficulty by explaining that the Ulalinka finds are unusual in that the pebbles were split not by striking but by being heated in a fire and then dropped in water.[16] Analysing the formation about this site, it should be noted that until more convincing evidence is available, Okladnikov's conclusions cannot be unreservedly accepted.

Another group of Lower Palaeolithic finds in this region comprises pebble tools of Palaeolithic appearance – choppers, chopping tools and 'nosed' tools – whose surface is covered with a thick patina(Fig. 5a).In appearance these quartzite artefacts recall similar products from the Lower Palaeolithic period in Africa and Asia, and there is every justification for seeing them as the earliest indigenous stratum of Palaeolithic cultures. Such objects have been found in south-eastern Mongolia in the vicinity of the town of Saynshand, and in the west, near Bojan-Ulga, Kobdo-Zhargalang, Dalai-Dzagada and elsewhere. They are generally found on the surface of ancient, possibly Lower Pleistocene, pebble beds scattered among the remnants of former terraces.

Quite different in appearance are the artefacts encountered in the foothills of the Yarkh mountains at the site of an enormous Palaeolithic workshop located on outcrops of a yellow, jasper-like rock, west of Saynshand. Okladnikov, who discovered them, suggests that these are clearly-defined Acheulean tools – hand-axes of classic design: oval (amygdaloid) or roughly triangular in shape, carefully worked on both sides and with the slightly curved longitudinal edges typical of the Acheulean. The collection includes unifacial core tools of a proto-Levalloi- sian type, massive, roughly triangular flakes and rare flake-tools of a Levalloisian appearance, shaped in an extended triangle but without retouch on the struck crest. These designs, particularly the bifacial hand-axes, have no parallels in other parts of Central Asia or the adjacent lands. Okladnikov draws the following conclusion that 'there are reasons to believe that not only the Acheulean technique but its carriers had penetrated from the areas of the classic Abbevillian and Acheulean cultures of Afro-European origin to the central regions of Asia'.[17]

The discovery of Lower Palaeolithic relics near the Yarkh mountain (Fig. 5b) at Erol-Gobi in central Mongolia has a direct bearing on the peopling of Mongolia by the ancestors of Neanderthal man and throws considerable light on the indigenous nature of the Palaeolithic culture. It presents 'local variations' of the Lower Palaeolithic cultures of Asia and Europe and emphasizes their importance in the early Stone Age of Central Asia. Great significance can be attached to the techniques for working stone and their own set of durable and typical two-sided tools or bifaces, very similar in type and design to those of western

[16] Okladnikov, 1972*b*, pp. 7–12.
[17] Okladnikov, 1978, p. 321.

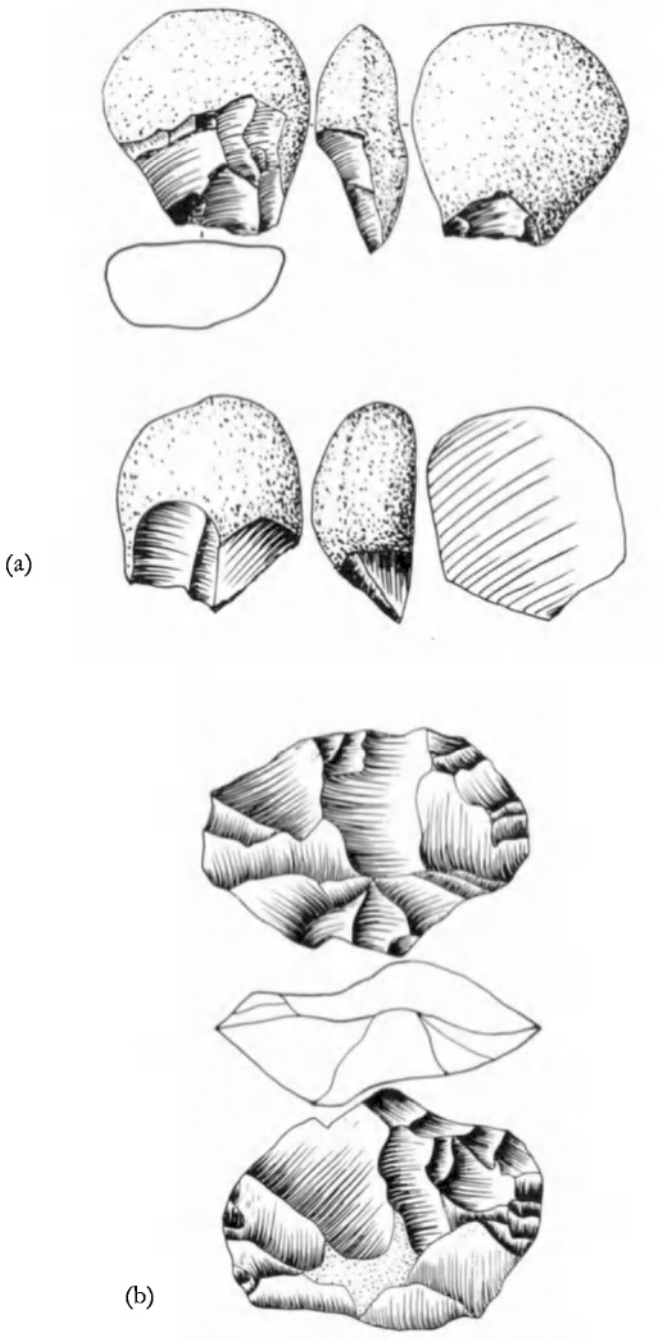


FIG. 5. Stone tools from Mongolia: (a) pebble tools from Mongolia; (b) biface tool from Yarkh.

Europe. The biface was a wholly new technical variation or device hitherto not found in Lower Palaeolithic remains in Central Asia in general and Mongolia in particular.

In our view, the similarity between Mongolian and European hand-axes is to be explained by conditions affecting two cultures separated from each other. The similarity is purely

external and arises from the fact that at a certain stage of Early Palaeolithic development, the inhabitants of Asia like those of Europe were confronted by the same problems.

There is yet another reason why the occurrence in the Lower Palaeolithic complex of central Mongolia of tools similar to those of Acheulean type (according to European periodization) cannot be linked with the cultures of western Europe, that is to say the tools, if not earlier, are at least of the same time. Consequently, the emergence and development of the techniques for making bifaces was an independent process.

A. P. Okladnikov observed that 'such a site [Yarkh] with such clear-cut evidence of Acheulean industry as that found in Europe, the Caucasus, India and Africa is the *first and only one in East Asia'* (my italics). In any case, by their presentation of Acheulean techniques and form, the tools found on Mount Yarkh have nothing in common with the occasional and, in fact, haphazardly designated 'bifaces' of northern China and Korea.

Indeed, in neither central nor northern Asia, nor in other territories are any tools to be found that bear even an indirect resemblance to the hand-axes and sharp-pointed tools of central Mongolia. Accordingly, everything described above points first of all to the fact that in the early Stone Age in Mongolia, that is, in the Middle Acheulean period, there existed an independent area of Acheulean-type development distinguished by stable and favourable conditions; and secondly, it indicates that at one and the same stage of their early development, people came to make the same discoveries and developed similar techniques for the working of stone and did so in isolation from one another.

Finally, the techniques and methods of producing hand-axes made of high-grade local materials provide evidence that the peopling of Mongolia originally took place on precisely that territory; that is to say, in the Lower Palaeolithic period of Mongolia the Yarkh settlement emerged and developed independently, as we now know from the discovery of the first and only flint works in the whole of Central Asia.

In conclusion, let us note that in respect of both the volume of artefacts it produces and the quality of their archaeological and geological substantiation, this region of Mongolia and southern Siberia is markedly inferior to the two previous regions.

In many parts of China such as the provinces of Yunnan, Guizhoi, Hubei, Shaanxi Hebei and the Autonomous Region of Inner Mongolia human fossils and cultural remains of this age have been found. The physical type of this period was still very primitive.

Peking man represents the most important evidence of the initial stage of China's Palaeolithic era, but the site lies outside Central Asia. However, because of its importance to the cultural study of this area, a brief account is included here. The source of the Peking Man

fossils is at Dragon Bone (Longgu) Hill, Choukoutien, 45 km south-west of Beijing.[18] A palaeogeomagnetic test determined the date of Peking Man as about 200,000 years old, corresponding to the Middle Pleistocene epoch in geology.

The skull of Peking Man is markedly primitive whereas the limb bones are fairly advanced. The skull for instance is squat and its brow-ridge is very coarse, jutting forward and continuing to the left and right. The wall of the skull is twice as thick as that of contemporary man, whilst the brain capacity is an average 1,043 cm^3 placing it between the hominids and contemporary man.

The site of Peking Man has produced at least 100,000 items including stone tools and flakes, pieces of raw materials and half-made artefacts. But the quantity of finished tools is rather small. The primary material for making tools is quartz and quartz crystal; flint and sandstone are secondary materials.

Chopping tools (Fig. 6) are the most common, and great numbers of oblate sandstone or quartz pebbles are struck from one or two sides to produce a sharp cutting edge, while the side opposite to the edge often preserves a section of pebble surface which can be conveniently grasped in the hand. Scrapers were widely used by Peking Man and are found in great numbers. They are often made of quartz, quartzite or flint. The great majority are made by chipping the edge from either one or two sides.

In the caves occupied by Peking Man many layers of ash were discovered. In the ash there were many burnt animal bones and stones and also a piece of charcoal of the Chinese redbud tree and seeds of Chinese hackberry tree. The stones had been burnt to a black colour and the surfaces bore irregular crackmarks. The animal bones had been burnt to a black or grey-blue colour and on the surface there were also crackmarks even to the extent of metamorphosis of the bone. The ash was found to be distributed in piles limited to particular areas, and wood had been used for the fire. Evidently this was not wild fire but is sufficient to prove its purposeful use by man.

The animal most frequently hunted by Peking Man was deer. Among the wild-animal bones discovered, 70 per cent were broken and burnt deer bones and deer horns. There were from two species of deer, the thick-jawed and the sika, both of them very numerous. There were over 2,000 fossil pieces of the thick-jawed deer alone. It seems that the hunters hunted these two species at particular seasons.

The activity of hunting had a very great influence on many aspects of the life of Peking Man. Not only did it directly supply him with meat, but also, thanks to the development of hunting and the processing of the quarry (as, for example, skinning and jointing), it

[18] Jia, 1950; Li and Ji, 1981; Pei, 1962; Pei and Zhang, 1979; Teilhard de Chardin and Wen, 1932; Weidenreich, 1934, 1941; Woo and Jia, 1954.

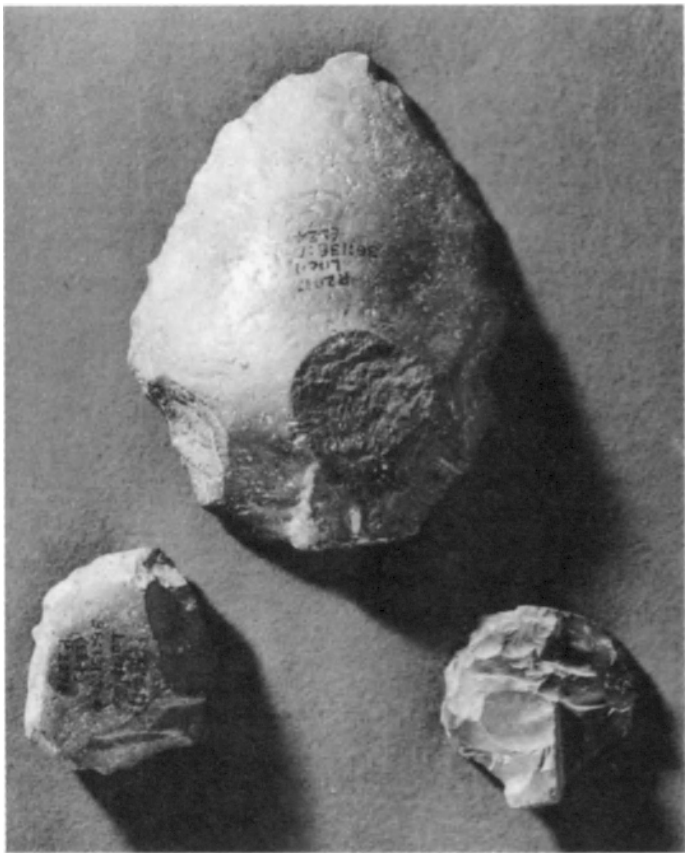


FIG. 6. Chopping tools and scrapers from Choukoutien.

undoubtedly gave a considerable impetus to the manufacture, use and improvement of tools. Not everybody could take part in the hunting and there was perforce an increase in the division of labour, differing division of the spoils between the sexes and different age-groups of the community. Hunting also strengthened social organization and caused it to develop.

The Palaeolithic material of Inner Mongolia is primarily limited to the discovery of stone implements. While surveying at Sidaogou in Nanshan Province in October 1977, many stone flakes and fragments were found in red clay deposits of the Middle Pleistocene epoch. Stone implements of the Late Palaeolithic period were also found in 1973 at Erdaogou, Nanshan. Subsequently excavations were undertaken and quantities of blades were found as well as flint flakes and fragments of waste material.

There is very little evidence on which to base a reconstruction of the lifestyle and economy of the Central Asian population in the Lower Palaeolithic. Even in well-stratified sites such as the loess camps of Tajikistan, finds are still restricted to stone tools, while such

important elements for a sociological reconstruction as the overall area of the site and the remains of dwellings of fauna assemblages stay completely unknown.

It may be supposed that in the Central Asian Lower Palaeolithic groups of fossil man came together and lived within the same framework of the laws of general development as governed the same stage of anthropogeny in many parts of the Old World: in China (Choukoutien), Africa (Olduvai, Orlegezai, Ismila and elsewhere), Europe (Terra Amata, Ambrona, etc.) and the Near East (Ubaidiya and Latamna). The essential point about these processes is that they led to more advanced and socially united communities than was previously the case.

The existence of permanent settlements, the organization of residential space, the construction of the first primitive dwellings, the production of different tools, the collective hunting of large animals: all this is the sign of well-established social bonds, the basis of which had been laid at the *Homo habilis* stage and shaped as long ago as the pre-Neanderthal period. The pebble cultures that are particularly characteristic of Central Asia were contemporary with the Acheulean of Europe and Africa. It is now thought that even Acheulean man lived in cohesive communities rather than herds, while human groups that may be described as the forerunners of tribes appeared in the Mousterian period. Work was already divided along sexual lines, and certain bans or taboos governed life within Palaeolithic communities particularly relations between the sexes. This fairly complex social life, and particularly the collective practice of the drive method of hunting large animals, could not have existed without articulate speech which presumably arose long before the appearance of Cro-Magnon man.

It is hard to say what were the important features of life and social structure in the Lower Palaeolithic communities of Central Asia or how they differed from similar associations of Acheulean tool-makers in the regions listed above. This question will be answered only by future research. But one thing may confidently be said: the ascent of contemporary man, once the primeval and early stages were past, was a single process throughout all the continents of the globe.